

The FutureList

Amperon

Innovation Memo

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Innovation In Words





A note from the Founder of Amperon, Sean Kelly


The clean economy sector is where everything is headed. It's a conversation at the dinner table not because it's famous, but because it's infamous.


Amperon

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 Mobility

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 Aerospace

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[electra.aero](#)

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 Undisclosed

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 2020

Executive Summary

Amperon provides AI-powered forecasting and data analytics software for power and utility companies – an essential tool to maintain a balanced grid to ensure the lights stay on. By leveraging best-in-class data management infrastructure and advanced AI/ML models, Amperon enhances grid reliability, optimizes financial risk management, accelerates renewables integration, and supports decarbonization efforts across the energy sector.

With the increase of renewable energy resources, shifts in load growth, and an increase in extreme weather events, power markets need AI-powered models that can process all of this new information, including 15-minute meter data, weather data and behind-the-meter devices among others, on an hourly basis to provide the most accurate forecasts available. These trends underscore the critical need for accurate, real-time data analytics and forecasting capabilities to manage operational challenges and capitalize on new opportunities in energy markets. Amperon provides forecasts for energy demand, generation, and renewables – from individual meters to grid scale.

Amidst the challenge of integrating siloed energy data, Amperon built a robust data and scalable infrastructure for the energy transition. In the next few years, Amperon is committed to building solutions to modernize grid data and the AI software stack to improve reliability.



Sean Kelly
Co-Founder & CEO

Sean attended Texas A&M University - Mays Business School. He has been at the forefront of the energy trading industry for almost 20 years. Sean co-founded Bridge Power Consulting, which he sold to Albireo Energy after co-founding Amperon in 2018



Abraham Stanway
Co-Founder & CTO

Abe Stanway is a longtime data scientist and entrepreneur with several company exits under his belt. He has held data science roles at Etsy, Planet Labs, and McKinsey, and sold his first company, Hacker League, to Intel.

Innovation Spotlight

a) Core Functionality/Features:

- Amperon's advanced demand forecasting uses cloud computing to enable a bottoms-up approach to data management, collecting detailed consumption and generation data from thousands, or even millions, of smart meters. At the same time, it references real-time weather information from thousands of data points across a continent. It then uses AI-powered systems to run multiple models to provide accurate forecasts.
- Amperon uses 40k+ data points every 1-5 km depending on population density. With an in-house meteorologist to give valuable insights, while their data science team wrings as much signal out of the rawest data to provide the best forecasts.
- Amperon's AI-powered forecasting and data analytics software serves as an essential tool for power and utility companies to maintain grid balance and ensure reliable electricity supply. In the face of increasing renewable energy resources, shifts in load growth, and more frequent extreme weather events, power markets require sophisticated models capable of processing vast amounts of new information. Amperon uses AI to analyze 15-minute meter data, weather conditions, behind-the-meter devices, and more on an hourly basis, delivering the most accurate forecasts available.

b) Design and User Experience:

- Amperon prioritizes a user-centered approach in their product design, ensuring that their diverse customer base, which includes utilities, gentailers, financial institutions, and renewable generators, remains at the forefront of the design process. This commitment to user-centricity begins with daily interactions with customers, engaging in continuous dialogue to understand their unique needs and challenges, which informs the development of the forecasting and analytics solutions.
- The design process is highly iterative, involving regular reviews of prototypes and the incorporation of user feedback. By consistently integrating this feedback, Amperon ensures that their products address real-world challenges effectively. Amperon's platform features a clean, user-friendly interface that simplifies the complexity of energy data analytics. Users can easily navigate through detailed dashboards, access real-time insights, and customize reports according to their specific requirements. Their AI-powered models are designed to present data in an easily interpretable format, which allows users to make informed decisions swiftly.
- The platform's flexibility allows for seamless integration with existing systems, enabling users to incorporate Amperon's forecasts into their operational workflows without disruption. Additionally, real-time operational analytics and automated scheduling tools streamline the forecast-to-bid process, reducing manual errors and saving valuable time for market operators.

Their commitment to user experience extends to customer support, where a team of experts is readily available to assist with any issues or provide additional insights. This comprehensive support ensures that users can maximize the value of the platform and maintain grid reliability, manage financial risks, optimize renewable energy integration, and accelerate decarbonization efforts.

c) Performance Metrics:

- Amperon's performance metrics are designed to ensure the highest level of accuracy and reliability in electricity forecasting and analytics. The AI-powered platform leverages advanced data management infrastructure and coherent machine learning models to deliver precise forecasts that enhance grid reliability, manage financial risks, optimize renewable energy integration, and accelerate decarbonization. The platform's short-term forecasts run every hour, utilizing the most up-to-date weather and grid data to predict energy demand and supply with remarkable precision. This hourly update cycle ensures that clients have the latest information to make informed decisions. By using advanced machine learning algorithms and real-time data inputs, Amperon achieves a high degree of accuracy, minimizing errors and enhancing the reliability of its forecasts.
- Onboarding speed is another critical performance metric. Thanks to robust data integration capabilities, Amperon's platform has the quickest onboarding process in the industry. Once the necessary ISO certificates and raw EDI data are accessible, clients can be onboarded within days. This rapid deployment allows customers to start benefiting from Amperon's insights almost immediately, without prolonged setup times.
- Amperon also tracks the performance of its automated AI scheduling tool, which streamlines the forecast-to-bid process. This tool automatically submits day-ahead bids based on the latest demand forecasts, reducing manual errors and ensuring that bids are always accurate. Performance metrics for this tool include the accuracy of submitted bids and the efficiency of the scheduling process.
- The accuracy and relevance of weather data are crucial performance metrics as well. Amperon uses a population-weighted grid of over 40,000 data points, providing granular weather forecasts that are far more detailed than those relying solely on airport weather data. This comprehensive approach enhances the precision of energy demand forecasts and supports better decision-making for grid management.

d) Integration/Compatibility:

One of the key aspects of Amperon's integration is its compatibility with major expense and data management software, including industry-leading platforms such as Snowflake and Microsoft BI, among others.

This extensive compatibility allows clients to incorporate Amperon's forecasting tools into their existing workflows without significant disruptions or additional investments in new software infrastructure. Amperon will further enhance its integration capabilities by enabling businesses to upload legacy data via CSV files directly to the dashboard, facilitating a smooth transition and comprehensive data analysis.

- Amperon's API integration capabilities provide additional flexibility, allowing clients to create custom integrations with their own systems. Amperon's integration with ISO-level data is another critical feature, providing short-term forecasts using only public data and more detailed portfolio-level forecasts with premise-level meter data. The platform also includes a fully automated AI scheduling tool that integrates seamlessly with clients' systems to streamline the forecast-to-bid process.

e) Safety, Compliance, and Sustainability:

- Amperon is committed to maintaining the highest level of data security for its clients. The platform is SOC II Type II compliant, which means it undergoes rigorous annual audits by a third party to ensure that all data handling and storage practices meet stringent industry standards. This compliance guarantees that clients' data is managed securely, protecting against unauthorized access and ensuring the integrity and confidentiality of sensitive information. The platform's robust security measures include encryption, regular security assessments, and continuous monitoring to safeguard against potential threats and vulnerabilities.
- In the rapidly evolving energy sector, regulatory compliance is paramount. Amperon's solutions are designed to help clients meet and exceed regulatory requirements. This compliance enables clients to produce accurate, standardized carbon reports that are essential for regulatory filings, government contracts, and participation in carbon markets. By ensuring adherence to these standards, Amperon helps clients navigate the complex regulatory landscape, reducing the risk of non-compliance and associated penalties.
- Sustainability is at the core of Amperon's mission. The platform's advanced forecasting and analytics capabilities are designed to support the transition to a more sustainable energy grid. By providing accurate, real-time insights into energy demand, generation, and renewables, Amperon enables power and utility companies to optimize their operations, integrate more renewable energy sources, and reduce their overall carbon footprint. The platform's ability to handle complex data from smart meters, weather stations, and behind-the-meter devices allows for precise management of renewable energy resources, such as solar and wind power, enhancing grid reliability and sustainability.

f) Innovation in Business Model:

Amperon's innovative business model is rooted in a subscription-based service that offers unparalleled flexibility and customization to meet the diverse needs of its clients. This model allows power and utility companies, financial institutions, and renewable generators to access Amperon's advanced AI-powered forecasting and analytics solutions through a scalable and cost-effective subscription plan.

g) Scalability of the innovation:

Amperon's technology is designed to scale efficiently. The platform's AI models and data infrastructure can accommodate an expanding user base and increased data volumes without compromising performance.

Market Impact & Future Outlook

- Amperon has already made significant strides in improving grid reliability, managing financial risk, and optimizing renewable energy integration. As the energy landscape continues to evolve, Amperon is well-positioned to lead the market with its innovative solutions. The company's commitment to sustainability and cutting-edge technology will drive further growth and expansion, making a substantial impact on the global energy sector.
- In the next 5-10 years, Amperon's focus will be on building solutions to modernize grid data and enhance the AI software stack, aiming to improve grid reliability and operational efficiency. This will involve developing advanced tools that help renewable generation asset owners optimize their operations, facilitating the integration of more renewable energy sources into the grid. By providing precise, real-time insights into energy demand and supply, Amperon will enable these asset owners to maximize their output and efficiency, thus contributing to a more sustainable energy grid.
- Additionally, Amperon will support grid operators and end-users in their efforts to accelerate decarbonization. This includes improving the accuracy of enterprise carbon accounting, enabling organizations to better track, report, and reduce their carbon emissions. With the increasing emphasis on sustainability and regulatory compliance, Amperon's solutions will become even more critical in helping companies meet their environmental goals and adhere to stringent reporting standards.
- Amperon's outlook also involves expanding its role in the energy sector by continuously innovating its forecasting models and data analytics capabilities. Amperon aims to stay ahead of industry trends and address emerging challenges in energy management. This forward-thinking approach will ensure that Amperon remains a vital partner for energy companies navigating the complexities of the modern grid.

Societal Impact

Amperon's platform contributes to environmental sustainability by enhancing the integration of renewable energy sources and reducing carbon emissions. By providing accurate forecasts and real-time analytics, Amperon helps grid operators make informed decisions that promote energy efficiency and reduce waste. The platform also empowers businesses and individuals to participate in the fight against climate change, fostering a culture of sustainability.

Potential Roadblocks & Risks

Amperon faces several significant roadblocks and risks in the pursuit of widespread adoption and optimal performance of its AI-powered electricity forecasting and analytics solutions including:

Weather Data Accuracy:

- Challenge: Energy demand is highly correlated with weather conditions. If weather forecasts are inaccurate, energy forecasts will also be off, potentially leading to inefficiencies and reliability issues in grid management.
 - Mitigation: To address this challenge, Amperon is continuously seeking to enhance its weather data inputs. The company has recently added its fifth weather vendor to improve the granularity and accuracy of its forecasts. Additionally, novel AI-powered weather forecasts will make weather predictions more precise and provide more up-to-date information, as AI models can run more frequently than traditional models (every 10 minutes versus several hours). The future inclusion of data from nano-satellites is expected to further enhance the detail and reliability of forecasting models.

Public Policy and Regulatory Barriers:

- Challenge: The energy sector operates within a complex regulatory environment that can lag behind technological advancements. The absence of comprehensive and responsive public policies that align with the evolving dynamics of the energy grid can impede the integration and acceptance of innovative technologies like Amperon's.
 - Mitigation: Amperon actively engages with policymakers and regulatory bodies to advocate for policies that support the adoption of advanced energy forecasting technologies. By participating in industry forums and collaborating with key stakeholders, Amperon aims to influence the development of regulatory frameworks that accurately reflect the complexities and real-time demands of the modern energy grid.

Adoption and Market Acceptance:

- Challenge: Despite the clear benefits of advanced energy forecasting, there is a natural resistance to change within established industries. Gaining widespread acceptance and adoption of AI-powered forecasting solutions can be slow, particularly among conservative market players.

- Mitigation: Amperon is committed to demonstrating the value of its solutions through pilot projects and case studies that highlight tangible improvements in grid reliability and operational efficiency. By showcasing success stories and providing comprehensive training and support to early adopters, Amperon aims to build trust and drive broader acceptance within the industry.

Conclusion

Amperon's innovative approach to electricity forecasting and analytics addresses the critical needs of today's volatile energy market. By leveraging AI and machine learning, the platform provides accurate, real-time insights that enhance grid reliability, manage financial risk, and support renewable energy integration. With a focus on sustainability and scalability, Amperon is poised to lead the industry in driving the transition to a decarbonized energy future.

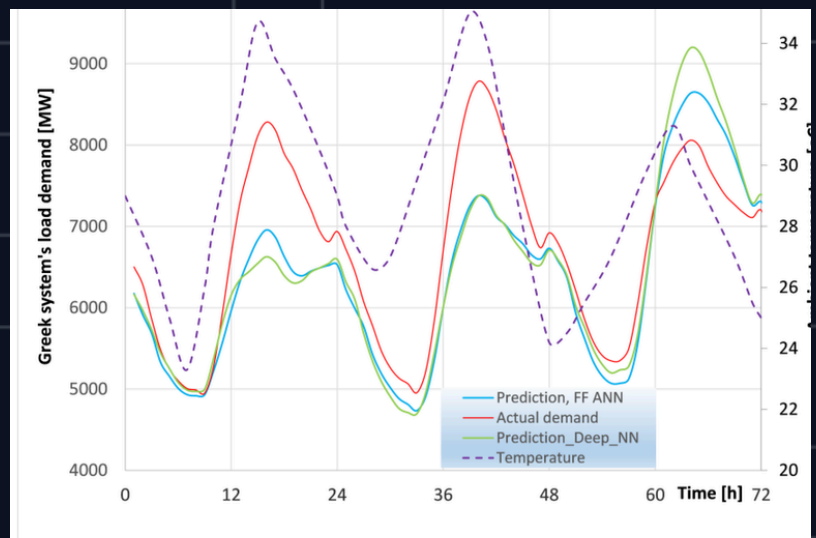
Innovation In View

How Amperon brings innovation to life



Amperon uses AI and advanced data analytics to forecast energy demand and supply in real-time, helping grid operators manage energy more efficiently.

Their platform processes vast amounts of data, to provide highly accurate and dynamic energy forecasts.



Contributors

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The FutureList

Notes on our methodology

About The FutureList

The FutureList is dedicated to identifying and linking innovative technology companies with the investors, talent and strategic growth partners they need to rapidly scale their innovation. The FutureList leverages its network of local Innovation Scouts, a comprehensive online platform, and curated events to rapidly spot and match opportunities. The FutureList network has already profiled over 6,000 innovative companies, investors and partners globally.

We scout across a broad range of sectors in tech, aiming to identify the most innovative startups globally. This includes everything from AI to biotech, renewable energy, and more. The 10 categories we currently focus on are: Agriculture (farming, food, beverages, crops, forestry, aquaculture, livestock, irrigation, veterinary, etc.), Climate (electricity, energy, environment, renewables, recycling, circular economy, carbon credits, cleantech, etc.), Education (e-learning, school management, assessments, upskilling, tutors, languages, etc.), Enterprise (legal services, AI, cyber security, market research, recruitment, HR, customer success, consulting, SaaS tools, business analytics, etc.), Finance (banking, capital, trading, lending, personal finance, insurance, crypto, real estate, etc.), Health (medicine, biotech, medical equipment, pharmaceuticals, public health, digital health, hospitals, health records, wellness, fitness, beauty, etc.), Infrastructure (architecture, materials, computer networks, safety, law enforcement, construction, data centers, machinery, telecom, wireless internet, manufacturing, etc.), Media (marketing, influencers, animation, arts, gaming, fashion, content, platforms, music, publishing, translation, editing, etc.), Mobility (delivery, transportation, etc.), and Supply Chain (e-commerce, warehousing, logistics, retail, etc.)

About Our Innovation Scouts

Our Innovation Scouts are experienced professionals from diverse sectors with a keen eye for groundbreaking technologies and business models. They undergo rigorous training to ensure they provide maximum value to the startups they work with. They conduct their research on a volunteer basis. We have strict ethical guidelines in place. Any Scout with a potential conflict of interest is recused from the process to ensure fairness and objectivity.

About Our Innovation Memos

Innovation Memos provide a comprehensive profile of an innovator, whether its a startup, hub, investor or more established corporate, highlighting technological and business model innovations. The Memo is written in direct consultation with a verified representative from that entity, and also outlines suggestions around how to rapidly scale their innovation further through use of The FutureList's network. Once published, the Memo accessible to our network of investors, partners, and the general public for free on our platform. The Memo process is completely free for the companies featured as well. The entire process, from initial contact to publishing the Innovation Memo, typically takes about 4-6 weeks, but this can vary based on the startup's availability and responsiveness. Our goal is to promote and scale innovation globally. The FutureList platform and events are sponsored by partners.

Scaling Innovation

How **The FutureList** identifies and scales innovation globally



Ecosystem and sector mapping

Our Innovation Scouts identify the most innovative early-stage and growth-stage tech companies across key sectors in tech hubs around the globe.



Innovation memos and platform profiles

Our Innovation Scouts interview founders and tech executives to publish innovation memos and create a comprehensive company profile on our public online platform.



Introductions to strategic opportunities

Our Innovation Scouts share company profiles with relevant investors and strategic growth partners across our global ecosystem, and facilitate warm introductions where requested.



Private dinners and fireside chats

Our exclusive evening events bring together founders, tech executives and other special guests for networking and interactive discussions around technology and innovation.



Global summits & learning trips

Featured companies will be invited to larger annual events held at the regional and global stage that connect the most innovative companies with opportunities for further visibility.

Sponsor

The FutureList platform and events are sponsored by partners.



Sand Technologies, a global technology services company with presence across Silicon Valley, France, the UK, Romania, and several emerging markets, is at the forefront of supporting scale-ups worldwide in overcoming the challenges of rapid growth. We're currently aiding businesses in the United States, New Zealand, Denmark, the Netherlands, the UK, the UAE, South Africa, Kenya, and numerous other locations in developing scalable technology products, constructing world-class tech teams, enhancing revenue generation, and elevating customer satisfaction.

Learn more at www.sandtech.com

The FutureList

